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FR

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/527.534 03/16/00 SUZUKI

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MMC2/0925

EXAMINER

SEPER, A

ART UNIT

PAPER NUMBER

2826

DATE MAILED:

09/25/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/527,534

Applicant(s)

SUZUKI, KOJI

Examiner

Ahmed N Sefer

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I in Paper No. 8 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Kikuo et al (EP 634 797 A2).

Kikuo et al disclose (see fig. 17 and col. 1, lines 10-30) a thin film transistor comprising a semiconductor film 102 or poly-silicon film (as in claim 9), a first gate insulating film 103 or SiO film (as in claim 8), a second gate insulating film 104 and a gate electrode G formed on a surface of substrate 101, wherein said first gate insulating film covers said semiconductor film, and said second gate insulating film is made of a material or SiN film (as in claim 8) for supplying hydrogen to said semiconductor film and is formed only in a region covered by said gate electrode to have substantially the same shape as said gate electrode.

4. Claims 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Kaganowicz et al. US Patent No. 4,692,344.

Kaganowicz et al et al disclose (see fig. 2, col. 1, lines 31-34 and col. 3, lines 58-

68) a semiconductor device comprising a semiconductor film 44, a first gate insulating film 48 or SiO film (as in claim 8), a second gate insulating film 50 and a gate electrode 52 formed on a surface of substrate 42, wherein said first gate insulating film covers said semiconductor film, and said second gate insulating film is made of a material or SiN film (as in claim 8) for supplying hydrogen to said semiconductor film and is formed only in a region covered by said gate electrode to have substantially the same shape as said gate electrode.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuo et al in view of Takemura et al. US Patent No. 5,719,065.

Kikuo et al disclose (see fig. 17 and col. 1, lines 10-30) a thin film transistor comprising a semiconductor film 102 or poly-silicon film (as in claim 9), a first gate insulating film 103 or SiO film (as in claim 8), a second gate insulating film 104 and a gate electrode G formed on a surface of substrate 101, wherein said first gate insulating film covers said semiconductor film, and said second gate insulating film is made of a material or SiN film (as in claim 8) for supplying hydrogen to said semiconductor film.

Takemura et al disclose (see fig. 2D and col. 3, lines 57-60) a gate insulating film 6 with a smaller film thickness in a region not covered with a gate electrode 7 than that in a region covered with said gate electrode.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a smaller film thickness in a region not covered with a gate electrode than that in a region covered with said gate electrode with the TFT of Kikuo et al, since that would enhance the influence of the positive charges trapped in the charge trapping layer while insuring the reliability of the gate insulating film.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Nakada et al (JP 9-107104) discloses a TFT with gate insulating film equal or larger than a gate electrode.

b. Moo US Patent No. 6,140,159 discloses a TFT including an ohmic layer activated by dopant impurities using hydrogen.

c. Hirano et al (JP 63-119269) disclose a TFT with hydrogen ion generation.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ahmed N Sefer whose telephone number is (703) 605-1227.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on (703) 308-6601.

ANS
September 20, 2001



Nathan Flynn
Primary Examiner